

**Notice of Allowability**

Application No.

10/016,445

Examiner

John B. Vigushin

Applicant(s)

CENTOLA ET AL.

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Application filed 10 December 2001.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS must be submitted.
  - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☒ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 3 <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____             |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____               | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment                  |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In Claim 1, line 1: "that" has been deleted.

### ***Allowable Subject Matter***

2. Claims 1-15 have been allowed.

3. The following is an examiner's statement of reasons for allowance:

As to Claims 1-3, patentability resides in *the insulative layer being flexible*, in combination with the other limitations of base Claim 1.

As to Claims 4-6, 7-11 and 12-15, patentability resides in the *insulative adhesive layer being flexible*, in combination with the other limitations of base Claims 4, 7 and 12, respectively.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

i) The following references discloses an assembly comprising a single elementary PCB with first and second electrical connectors positioned on the lower outer surfaces of the PCB, the assembly mounted to a connector on a backplane:

a) Zell (US 5,090,912): Fig. 6; PCB 2, connectors 24 and 25, backplane 1.

b) Cox et al. (US 5,397,241): PCB 11, connectors 13 and 14, backplane 40.

c) Sato (US 6,322,372 B1): PCB 100, connectors 11a and 11b, backplane 200 (col.3: 55-67).

ii) The following references disclose first and second elementary PCBs spacedly positioned apart from each other by a separation layer of non-flexible material:

a) Conrad et al. (US 3,334,325): Fig. 2; PCB 10 comprises first and second double-clad epoxy glass boards 79 and 83; separation layer 81 is also an epoxy glass sheet (col.4: 32-41 and 65-70).

b) Hogan et al. (US 3,746,932): Fig. 10; first and second elementary PCBs 12 separated by metal ground layer 17 (col.6: 28-32), mounted to first and second connectors 78 and 80 of connector 74 on backplane 54.

c) Lindeman (US 5,004,427): Fig. 1; first and second elementary PCBs 39 and 40 separated by metal heat sink 41 (col.6: 65-col.7: 9).

iii) Pickles et al. (US 5,051,099) discloses an elementary multilayer board 172 mounted to a connector, the elementary multilayer board including a central ground plane 178 and a through-hole 179 for connecting the outer contact layers 180 to ground plane 178 (col.6: 48-57).

iv) Saito et al. (US 5,522,727) discloses an elementary multilayer board 1 connected by pins 8 to daughter board 20 and backplane 30 (Figs. 9-11), the multilayer board comprising a insulative central layer 40 with strip lines 41, insulative outer layers 50 and 60 and interconnection through-holes 47 (col.5: 40-55).

v) The following references disclose circuit substrates bonded together by means of insulative adhesive layers:

a) Mandai et al. (US 5,384,434): Fig. 1; circuit substrates 12, 13 and 14 bonded to one another by insulating adhesive (i.e., low melting-point glass) layers 28 and 29 (col.4: 67-col.5: 5).

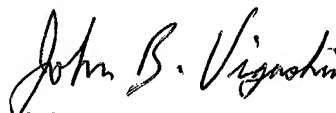
b) Ehman et al. (US 6,021,050): Fig. 1; circuit substrates 12, 14 and 16 bonded to one another by insulating adhesive (i.e., B-stage resin) layers 18 and 20 (col.2: 54-59).

c) Shinada et al. (US 6,121,553): Fig. 1H; two circuit substrates of Fig. 1G are bonded to each other by insulating adhesive (i.e., B-stage resin) layer 9 (col.11: 51-56) and interconnected by plated through-holes 10 (col.11: 56-57).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 703-308-1205. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



John B. Vigushin  
Examiner  
Art Unit 2827

jbv  
April 16, 2003